



## **Compliance Testing, LLC**

Previously Flom Test Lab

EMI, EMC, RF Testing Experts Since 1963

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# **FCC CFR47 Part 1.1310 Test Report**

Prepared for: Blackboard, Inc

Model: VR4101

Description: Vending Card Reader

To

Federal Communications Commission

Rule Part 1.1310

Radiofrequency Radiation Exposure Limits

Date of Issue: June 23, 2011

On the behalf of the applicant:

Blackboard, Inc.  
22601 N 19th Ave  
Suite 113  
Phoenix, AZ 85027

Attention of:

Tim Mattson, Sr. Engineer  
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Prepared by

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Project No: p1160003

**John Erhard**

**Project Test Engineer**



### Test Report Revision History

| Revision | Date          | Revised By  | Reason for Revision |
|----------|---------------|-------------|---------------------|
| 1.0      | June 23, 2011 | John Erhard | Original Document   |
|          |               |             |                     |
|          |               |             |                     |
|          |               |             |                     |



## ILAC / A2LA

Compliance Testing, LLC, has been accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated January 2009)

The tests results contained within this test report all fall within our scope of accreditation, unless noted in the table below

Please refer to <http://www.compliancetesting.com/labscope.html> for current scope of accreditation.

Testing Certificate Number: **2152.01**



FCC OATS Reg, #933597

IC Reg. #2044A-1

|                                                |
|------------------------------------------------|
| Non-accredited tests contained in this report: |
| N/A                                            |
|                                                |



### 13.56 MHz RFID Transmitter

**Limits Uncontrolled Exposure**  
**47 CFR 1.1310**  
**Table 1, (B)**

|                  |                                                     |
|------------------|-----------------------------------------------------|
| 0.3-1.234 MHz:   | Limit [mW/cm <sup>2</sup> ] = 100                   |
| 1.34-30 MHz:     | Limit [mW/cm <sup>2</sup> ] = (180/f <sup>2</sup> ) |
| 30-300 MHz:      | Limit [mW/cm <sup>2</sup> ] = 0.2                   |
| 300-1500 MHz:    | Limit [mW/cm <sup>2</sup> ] = f/1500                |
| 1500-100,000 MHz | Limit [mW/cm <sup>2</sup> ] = 1.0                   |

|                          |             |
|--------------------------|-------------|
| Test Frequencies, MHz    | 13.56       |
| Power, Conducted, W (P)  | 0.000000013 |
| Antenna Gain Isotropic   | -20.6 dBi   |
| Antenna Gain Numeric (G) | 0.1         |
| Antenna Type             | Loop        |
| Distance (R)             | 20 cm       |

|                            |                     |                 |
|----------------------------|---------------------|-----------------|
| Power Density Calculations | Formula =           | $S = PG / 4R^2$ |
|                            | Power Density (S) = | 0.0000000041    |
|                            | Limit =             | 0.978           |

### 2.4 GHz 802.11 b/g Transmitter

**Limits Uncontrolled Exposure**  
**47 CFR 1.1310**  
**Table 1, (B)**

|                  |                                                     |
|------------------|-----------------------------------------------------|
| 0.3-1.234 MHz:   | Limit [mW/cm <sup>2</sup> ] = 100                   |
| 1.34-30 MHz:     | Limit [mW/cm <sup>2</sup> ] = (180/f <sup>2</sup> ) |
| 30-300 MHz:      | Limit [mW/cm <sup>2</sup> ] = 0.2                   |
| 300-1500 MHz:    | Limit [mW/cm <sup>2</sup> ] = f/1500                |
| 1500-100,000 MHz | Limit [mW/cm <sup>2</sup> ] = 1.0                   |

|                          |              |
|--------------------------|--------------|
| Test Frequencies, MHz    | 2437         |
| Power, Conducted, W (P)  | 0.003        |
| Antenna Gain Isotropic   | 2 dBi        |
| Antenna Gain Numeric (G) | 1.58         |
| Antenna Type             | Chip Antenna |
| Distance (R)             | 20 cm        |

|                            |                     |                 |
|----------------------------|---------------------|-----------------|
| Power Density Calculations | Formula =           | $S = PG / 4R^2$ |
|                            | Power Density (S) = | 0.0000150883    |
|                            | Limit =             | 1.0             |